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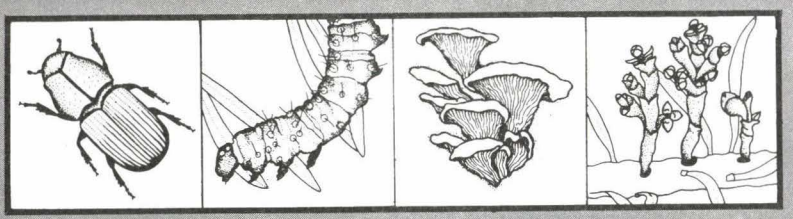
Forest Pest Management



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MANAGEMENT ALTERNATIVES FOR LODGEPOLE PINE RECREATIONAL FACILITIES THREATENED BY THE MOUNTAIN PINE BEETLE

by

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Silvicultural manipulation of lodgepole pine stands infested or threatened by the mountain pine beetle is the most feasible method of reducing losses to this pest in forest situations. In recreational sites, however, these strategies may be inappropriate or undesirable. Maintaining the recreational integrity of such sites and thereby protecting their development and maintenance costs may justify management alternatives too costly to be conducted on a larger scale. For these reasons, management of recreational sites threatened by beetle attack require different approaches and considerations.

First, an examination of the area must determine if the threat to the site is from adjacent infested stands or from infested trees within the site itself. Each situation may require a unique approach to management.

In the first case where the site is not yet infested, host trees within the facility should be risk rated to determine their susceptibility to attack. Trees most likely to be attacked are slower growing ones over 8 inches (diameter breast height) and older than about 80 years. Large trees with thick phloem when stressed by age, drought, soil compaction, mechanical injuries, or other conditions which may be unique to recreational facilities are not only more susceptible to the beetle, they provide favorable brood sites for enhancing or perpetuating an infestation. These larger, older, more decadent trees should be removed. The remaining trees--depending upon how many trees have been cut--will likely increase in vigor due to a relaxing of competitive stress and will become more resistant to beetle attack. To assure their survival, however, when adjacent beetle populations are high, a program of preventive spraying should be initiated. Sevimol® 4, a water-based spray containing the insecticide carbaryl, is registered for use as a preventive application in both Idaho and Montana. It has been used operationally with great success for the past several years. All host trees on the site greater than 5 inches d.b.h. should be treated to a height where the diameter is less than 5 inches. A single 2 percent (active ingredient by weight) application will protect trees through two seasons. It has been our experience that two such applications are usually sufficient to protect a site through the course of an infestation.

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In the situation where sufficient trees are removed to reduce stocking below desirable levels, tree planting may be needed. This would present an opportunity to convert some of the trees on the site to species less susceptible to the beetle. Depending upon local site factors, larch, spruce, Douglas-fir, or other nonhost species may be considered. In some cases, sapling-sized trees have been transplanted to hasten the site's recovery. Though species conversion on the site may be desirable as an ultimate goal, a preventive spraying program as previously described, can maintain the site's recreational integrity while conversion takes place.

Campgrounds with a significant lodgepole pine component which is young enough (less than 80 years) or small enough (less than 8 inches d.b.h.) to be less susceptible could benefit from a pretreatment program of species conversion. On such sites, nonhost species could be actively regenerated or encouraged through judiciously manipulating stand components. Such activities could result in a site with a minor lodgepole component by the time those trees reach a condition susceptible to the beetle.

Another consideration for recreational sites as yet unaffected by the beetle would be the extension of management practices to adjacent stands. In the situation where a campground, for example, is surrounded by a lodgepole forest susceptible to the beetle, it may be more appropriate to manage the entire area rather than concentrating efforts in a small part of that area. Risk rating and attendant silvicultural manipulations in surrounding stands may be the most beneficial form of management for some recreational sites.

Those sites on which a mountain pine beetle infestation currently exists will require some different approaches. As a first step, all past and presently infested trees should be identified and removed. Removal of the currently infested trees will help reduce the beetle population on the site. Removal of dead, formerly infested trees will reduce the hazard associated with dead and dying trees to visitors on the site. Depending upon the percentage of the trees removed in that operation, the management which follows may closely resemble that previously described. Where an extensive stand remains, remaining trees should be risk rated with removal of highly susceptible ones and preventive treatment of those which are less susceptible. In those cases where much of the stand has been removed, replanting with emphasis on a species mix may be the only remaining option. Precautions are necessary, however, where many trees have been removed. Too few trees per acre in some situations may not be windfirm enough to leave on recreational sites. Where many trees are already infested and programed for removal, it may be advisable to remove the entire stand as a hazard-reducing measure. Local edaphic, topographic, and climatic conditions will have to be considered when making the final decision.

Finally, because the mountain pine beetle is an endemic species and an integral part of the ecology of lodgepole pine forests, it will always be present to some degree. Too, forest conditions change from year to year with weather, patterns of use, etc. For these reasons, periodic monitoring of stand conditions on recreational sites is mandatory. At least once each year sites should be visited and trees inspected to determine if beetles are present, if trees are becoming more susceptible, or if additional treatment is needed. Increasing establishment and maintenance costs of recreational facilities and their importance to forest visitors make their protection through proper management a critical responsibility of the forest manager.

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